REMARKS

Claims 1 and 3-31 were pending and presented for examination and in this application. In an Office Action dated August 9, 2007, claims 1 and 3-31 were rejected. Applicants thank the Examiner for examination of the claims pending in this application and address the Examiner's comments below.

Applicants are amending claims 1, 13, 16 and 24 in this Amendment and Response.

In view of the Amendments herein and the Remarks that follow, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections, and withdraw them.

Response to Rejection Under 35 USC §112, Paragraph 1

In the Office Action, the Examiner has rejected claims 1, 13, 16 and 24 under 35 USC §112, ¶ 1 as allegedly lacking written description. This rejection is respectfully overcome in view of the amended claims.

Claim 1 has been amended to recite a method of handling a message received at a messaging system server, the method comprising:

> determining whether the attempting to deliver the message
> > was successful;
> if the attempting to deliver the message was not successful,
> > continuing to store the message in the non-
> > persistent storage for a delay interval;
> …
> after the delay interval has elapsed, saving the message to
> > persistent storage so that the message can be
> > retrieved and delivered.

Claim 1 has been amended to clarify that a determination is made if the attempting to deliver the message was successful and that if the attempting to deliver the message was not successful and the delay interval has elapsed, the message is saved to persistent storage. This amendment is supported by the specification. For example, page 7, lines 4-15 of the specification provides that:

> ...after receipt of message #1 116, application C 112 transmits a receipt acknowledgement message 122 back to the server 100. The system 100, in turn, transmits a guarantee acknowledgement message 124 to the sending client, application A 124, since delivery of the message 116 enables the system 100 to guarantee that it will not lose the message 116 prior to delivery. The system 100 may also transmit a message (not shown) indicating configured receipt of a message by a receiving application. As shown, the system 100 removes message #1 116 from the log queue 104 by deleting the message, message reference, or otherwise indicating that the server 100 need not save the message 116 to persistent storage

The amendment is further supported by the specification at, for example, page 5, lines 11-14, which states:

> The system 100 continually removes messages from the log queue 104 as the server 100 delivers the messages. After a delay interval, the system 100 begins saving undelivered guaranteed messages to persistent storage 106.

Claims 13, 16 and 24 have been similarly amended to more clearly describe the invention, and not to narrow the scope of protection provided by the claims.

Based on these amendments, Applicants respectfully request withdrawal of the rejection of claim 1, 13, 16 and 24.

Response to Rejection Under 35 USC §103(a)

In the Office Action, the Examiner rejects claims 1, 3, 7-12, 16-17, 20-25 and 28-31 under 35 USC §103(a) as allegedly being unpatentable over U.S. Patent 6,397,352 ("Chandrasekaran") in view of U.S. Patent No. 5,596,720 ("Hamada") in further view of U.S. Patent No. 5,805,825 ("Danneels"). This rejection is respectfully overcome in view of the amended claims.

Claim 1 has been amended to recite:

> ...determining whether the attempting to deliver the
> message was successful;
> if the attempting to deliver the message was not
> successful, continuing to store the message in the
> non-persistent storage for a delay interval;
> ...
> after the delay interval has elapsed, saving the message to
> persistent storage so that the message can be
> retrieved and delivered.

If the attempted delivery of the message was not successful, the message is stored in non-persistent storage for a delay interval then stored in persistent storage after the delay interval has elapsed. Initially storing unsuccessfully delivered messages in non-persistent storage allows rapid access to the messages for retransmission during the delay interval. This allows message retransmission without introducing additional latency caused by retrieving the message from persistent storage. As initially storing the message in non-persistent storage reduces the time needed to access the message, overall system performance is increased. Saving the unsuccessfully delivered message to persistent storage after the delay interval has elapsed beneficially frees space in the non-persistent storage for recent messages which increases system performance, while also providing continued access to older messages from the persistent storage for later retrieval and delivery. Additionally, storing the

message to persistent storage beneficially ensures that the message will not be lost in the event of network or power failure and makes the message accessible for subsequent analysis or delivery attempts.

Chandrasekaran does not teach or disclose "determining whether the attempting to deliver the message was successful" or "if the attempting to deliver the message was not successful, continuing to store the message in the non-persistent storage for a delay interval." Rather, Chandrasekaran discloses "after a message is written into the propagation queue it may be dequeued and propagated to the destination site." (Chandrasekaran, col. 7, ln. 14-15) Prior to transmitting all messages, Chandrasekaran initially stores all messages to the propagation queue, and then removes the messages from the propagation queue after transmission. (Chandrasekaran, col. 7, ln. 14-19). Unlike the claimed invention, there is no "determining whether the attempting to deliver the message was successful" in Chandrasekaran, but merely a constant action of storing all messages in the propagation queue before transmission.

Additionally, Chandrasekaran does not disclose "after the delay period has elapsed, saving the message to persistent storage so that the message can be retrieved and delivered." Rather, Chandrasekaran merely assigns a propagation sequence number to a message then transmits the message and the propagation sequence number to a destination site. After transmission, "the propagation process then stores the propagation sequence number, the UID and an initial propagation state…into a propagation table that is maintained in durable (nonvolatile) memory at the source site." (Chandrasekaran, col. 7, ln. 27-40) Chandrasekaran merely stores data that describes the message, such as the UID and message

propagation state, and does not store the actual message itself after each message transmission. As Chandrasekaran only stores message identification data after each message transmission, regardless of transmission success or failure, Chandrasekaran fails to disclose "after the delay period has elapsed, saving the message to persistent storage so that the message can be retrieved and delivered," as claimed.

Further, the only disclosure of time relative to the messages in Chandrasekaran regards timestamps which identify the ordering of messages in the propagation queue. Rather than determine how long a message is stored in non-persistent storage, the timestamps in Chandrasekaran merely determine in order in which message data is inserted into the propagation queue. (Chandrasekaran e.g., col. 7, ln. 1-13) The timestamps merely indicate the order in which messages should be dequeued from the propagation queue and propagated to the destination site and does not measure, or otherwise indicate, a delay interval during which a message is stored in non-persistent storage and indicating when to store the message in persistent storage.

Hamada does not remedy the deficiencies of Chandrasekaran. Rather, Hamada merely discloses a message transmitting process where "the content of the message ID and the content of the message are also stored in the non-volatile memory." (Hamada, col. 17, ln. 46-48) In Hamada, the storage of messages in non-volatile memory is not responsive to the attempted delivery not being successful and the delay interval has elapsed. Rather, as shown in FIG. 23 of Hamada, **all** guaranteed messages are stored in non-volatile memory and are only transmitted after storage in non-volatile memory. (Hamada, FIG. 23 steps S4, S5) At step S4 the message ID and the content of the message is stored in non-volatile memory

without determining if delivery was successful or unsuccessful. (Hamada, col. 17, ln. 46-48) Once the message is saved in non-volatile memory, "a request is made to the supervisor 104 with the content of the message together with the corresponding message identifier MSG ID1 for a message transmission." (Hamada, col. 17, ln. 51-53) Hence, all guaranteed messages are stored in non-volatile memory and are not transmitted until after storage. In contrast, the claimed invention does not save the message into persistent storage unless the delivery attempt is unsuccessful and after the delay interval has elapsed.

Hamada creates extra latency for all messages by storing all messages in non-volatile memory prior to transmission, while the claimed invention avoids additional latency for recent messages by initially storing unsuccessfully delivered messages in non-persistent storage. Furthermore, Hamada stores all guaranteed messages in non-volatile memory prior to transmission, so determination of whether message delivery was successful or unsuccessful does not affect message storage. In Hamada, storage of the guaranteed messages in non-volatile memory is independent of the delivery status of the messages. Unlike Hamada, the claimed invention saves messages into non-volatile storage after an attempt to deliver the message is unsuccessful and after a delay interval has elapsed and does not store messages into non-volatile memory prior to transmission.

Danneels also does not remedy the deficiencies of Chandrasekaran and Hamada. Rather, Danneels merely discloses a carousel which broadcasts a message each time the carousel rotates to rebroadcast the message at a predetermined interval corresponding to the carousel rotation time. The carousel then "watches each message to determine if it has been broadcast a predetermined amount of time…If it has, it is removed to the temporary storage."

(Danneels, col. 6, ln. 58-67) Hence, after broadcasting a message for a predetermined amount of time, the messages are removed from the carousel and placed in temporary storage until the message is reactivated by a client request or the message times out. Therefore, Danneels never saves messages in persistent storage after an unsuccessful attempt to deliver the message and the lapse of the delay interval, as claimed, but merely saves messages into temporary storage after the message has been transmitted for a predetermined time interval.

Additionally, Danneels does not determine whether an attempted message delivery is successful or unsuccessful. Rather, Danneels merely transmits a message multiple times, regardless of whether the message delivery is successful or unsuccessful. A data scheduling sender defines a time limit for broadcasting a message and after the time limit has elapsed the message is removed from the carousel and placed into temporary storage for later retrieval. (Daneels, col. 7, ln. 28-30) Danneels merely removes messages from a carousel and stores the messages into temporary storage after a specified number of transmission attempts, regardless of the success or failure of the transmission attempts. In contrast, the claimed invention saves a message to persistent storage responsive to the delivery attempt not being successful and after the delay interval elapses.

Applicants respectfully submit that for at least these reasons amended claim 1 is patentably distinguishable over Chandrasekaran in view of Hamada in further view of Danneels, both alone and in combination. Therefore, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

As claims 3 and 7-12 depend from claim 1, all arguments advanced above with respect to claim 1 are hereby incorporated so as to apply to claims 3 and 7-12. Therefore,

Applicants respectfully submit that claims 3 and 7-12 are patentable over the cited references, both alone and in combination. Hence, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

Independent claims 16 and 24 have been similarly amended to include "determine whether the attempt to deliver the message was successful," "if the attempt to deliver the message was not successful, continue to store the message in the non-persistent storage for a delay interval" and "after the delay interval has elapsed, save the message to persistent storage so that the message can be retrieved and delivered," so all arguments advanced above with respect to claim 1 also apply to amended claims 16 and 24. Therefore, Applicants respectfully submit that claims 16 and 24 are patentable over the cited references, both alone and in combination. Hence, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

As claims 17 and 20-23 depend from claim 16, all arguments advanced above with respect to claim 16 are hereby incorporated so as to apply to claims 17 and 20-23. Therefore, Applicants respectfully submit that claims 17 and 20-23 are patentable over the cited references, both alone and in combination. Hence, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

Similarly, as claims 25 and 28-31 depend from claim 24, all arguments advanced above with respect to claim 24 are hereby incorporated so as to apply to claims 25 and 28-31. Therefore, Applicants respectfully submit that claims 25 and 28-31 are patentable over the cited references, both alone and in combination. Hence, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

Examiner has rejected claims 4-6, 13-15, 18-19, and 26-27 as allegedly being unpatentable over Chandrasekaran in view of Hamada and Danneels and further in view of U.S. Patent 6,289,212 ("Stein"). This rejection is respectfully overcome in light of the amended claims.

Independent claim 13 has been similarly amended to recite "determining whether the attempting to deliver the message was successful," "if the attempting to deliver the message was not successful, continuing to store the message in the non-persistent storage for a delay interval" and "after the delay interval has elapsed, saving the message to persistent storage so that the message can be retrieved and delivered." Therefore, the arguments advanced above regarding amended claim 1 are hereby incorporated to apply to amended claim 13.

Stein fails to cure the deficient disclosure of Chandrasekaran, Hamada and Danneels. Stein does not disclose or teach "determining whether the attempting to deliver the message was successful" or "if the attempting to deliver the message was not successful, continuing to store the message in the non-persistent storage for a delay interval" or "after the delay interval has elapsed, saving the message to persistent storage so that the message can be retrieved and delivered." Rather, Stein discloses techniques that allow clients to perform electronic mail services when the network is unavailable. (Stein, Abstract) At most, Stein discloses pre-loading channel resources into a memory, specifically a persistent storage, during electronic mail channel processing by a mobile device. (Stein, col. 7, ln. 51-58. Stein saves all resources to persistent storage so that the mobile device can subsequently access the resources regardless of network availability. Thus, Stein saves all channel resources to

persistent storage regardless of message delivery status and does not determine if the attempt to deliver the message was successful, as claimed.

Applicants respectfully submit that for at least these reasons claim 13, as amended, is patentably distinguishable over Chandrasekaran in view of Hamada and Danneels in further view of Stein, both alone and in combination. Therefore, Applicants respectfully request that the Examiner reconsider the rejection, and withdraw it.

As claims 4-6 depend from claim 1, the arguments presented above are hereby incorporated so as to apply to claims 4-6. Therefore, Applicants respectfully submit that claims 4-6 are patentable over the cited references. Hence, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

As claims 14 and 15 depend from claim 13, all arguments presented above are hereby incorporated so as to apply to claims 14 and 15. Therefore, Applicants respectfully submit that claims 14 and 15 are patentable over the cited references, both alone and in combination. Hence, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

As claims 18 and 19 depend from claim 16, all arguments presented above are hereby incorporated so as to apply to claims 18 and 19. Therefore, Applicants respectfully submit that claims 18 and 19 are patentable over the cited references, both alone and in combination. Hence, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

As claims 26 and 27 depend from claim 24, all arguments presented above are hereby incorporated so as to apply to claims 26 and 27. Therefore, Applicants respectfully submit

that claims 26 and 27 are patentable over the cited references, both alone and in combination. Hence, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

Conclusion

In sum, Applicants respectfully submit that claims 1 and 3-31, as presented herein, are patentably distinguishable over the cited references (including references cited, but not applied). Therefore, Applicants request reconsideration of the basis for the rejections to these claims and request allowance of them.

In addition, Applicants respectfully invite the Examiner to contact Applicants' representative at the number provided below if the Examiner believes it will help expedite furtherance of this application.

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Respectfully Submitted,
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